SPE NEWS

VOL. 5 No. 3

MARCH, 1949

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SPE NEWS

ISSUED MONTHLY TO ALL MEMBERS OF THE SOCIETY OF PLASTIC ENGINEERS

Volume 5 **Number 3**

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THIS ISSUE SPONSORED BY NEW YORK SECTION

The National Debt —and You

FINANCES of a national society are seldom known accurately by the individual members, and are not often of interest so long as the society functions properly. However there are several things about the SPE national financial picture that have a direct and important bearing on the benefits to be derived from the SPE by the individual members.

Let us note first of all that of the dues paid by each member to the national office, half of the dues are returned to the section treasury. Specifically, out of every dollar collected, the national gets fifty cents and the local section gets fifty cents. Few if any other organizations work this way. Many, such as the American Chemical Society, keep the whole amount of dues; others return a small percentage to local sections.

Since most of the large expenses are incurred by the national SPE, such as the maintenance of a full-time office, printing of forms, and so on, then it is plain that virtually all national money must go into maintenance and routine expenses, while the money for development and expansion, presentation of programs and membership service goes to the local sections, which usually have more money than is used.

Further, for the information of newer members, the SPE incurred a large indebtedness a couple of years ago through an unfortunate combination of circumstances. To pay these debts, money was borrowed from local sections. This debt has been reduced to about a thousand dollars by careful fund management; this remainder is owed to Chicago and Detroit. It was to pay off this extra

(Continued on outside back cover)

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History of the New York Section

By A. M. MERRILL

The New York Section first saw the light of day in 1946 as an outgrowth of the Newark Section. Disclaiming laziness as their sole reason for starting a new section, the original batch of 23 refugees from Newark, now proudly hailed as pioneers, abandoned their clandestine activities and came out into the open early in June when an organizational meeting was held at the Hotel Commodore.

This group of plotters who became the charter members of the New York Section included J. D. Avignone, M. A. Cuming & Co., Inc.; Robert Brinkema, Egmont Arens; C. E. Carlson, Cable Electric Corp.; Cliff Cowan, Cowan Boyden Corp.; L. J. Francisco, Formica Insulation Co.; Sam Gurley, Jr., Durez Plastics & Chemicals, Inc.; Jim Murphy, Arthur Nufer, and F. C. Sutro, Jr., all of Bakelite Corp.; David Murray and William Stopford, both of Boonton Molding Co.; R. D. Orde, American Insulator Corp.; William Schack, then of "Plastics" magazine; A. B. Smith, Turner Halsey Co.; S. J. Smith, American Hard Rubber Co.; B. E. Wessinger, Wess Plastic Molds, Inc.; and a representation from Ideal Plastics Corp. that included C. A. Arliss, J. A. Biancale, George Barron, G. P. Bohrer, Ray Bottleman, H. L. Merin, and W. C. Peterson (now with Great American Plastics Co.).

Ably abetted by W. B. Hoey, then national secretary, and J. H. DuBois, Shaw Insulator Co., the members met behind barred doors and elected the following directors: L. J. Francisco, Robert Brinkema, Cliff Cowan, Sam Gurley, G. P. Bohrer, W. C. Peterson, David Murray, Arthur Nufer, and C. E. Carlson.

Fired with enthusiasm and sufficient spirits, these intrepid directors met on June 12, 1946 and promptly elected themselves to all available office jobs; Brinkema became president, Murray took the vice presidency, Peterson took the treasury, and Nufer (claiming literacy) became secretary. Unable to obtain the more lucrative positions, Bohrer became national councilman, Francisco was elected to the advisory board, and Cowan settled for the chairmanship of the membership committee. For some unexplicable reason, the archives show no record of the activities of Gurley and Carlson.

The bars were then let down and the Section held its first regular meeting on June 25 in the Hotel Sheraton. Some 41 persons attended, and from this auspicious beginning there has grown a section which now totals 114 members and ranks fifth in membership among the SPE sections. Regular monthly dinner meetings are held on the second Tuesday of each month at the Hotel Sheraton (now being renamed the Hotel Shelbourne). Twice each year, the New York and Newark Sections hold mutual membership raiding expeditions under the guise of joint meetings, but there has been no bloodshed to date.

In 1947 a new slate of officers was elected by the directors, as follows: president, David Murray; vice president, George Bohrer; treasurer, Stanley Bindman, Noma Electric Corp.; and secretary, Arthur Nufer. In 1948 the following men took office: president, Arthur Nufer; vice president, Stanley Bindman; secretary, Sam Silberkraus, Regal Molding Co.; treasurer, George H. Rice, American Cyanamid Co.; and national councilman, David Murray. Current officers of the Section are: president, Stanley Bindman; vice president, Sam Silberkraus; secretary-treasurer, George Barron; and national councilman, Nicholas V. Fasano, Washington Molding Co., Inc. Other current directors and committee members were listed in the February issue of *SPE News*.

The New York Section is enjoying a renaissance this year under a program designed to revitalize the Section, increase the membership, and improve the tone of meetings. Although in effect for only a few months, the program has already met with success and the members confidently expect the Section to further expand and improve, and take its place as a leading chapter of SPE.

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THE QUARTERMASTER RESEARCH PROGRAM ON PLASTIC FILMS AND COATED FABRICS

By DR. WARREN STUBBLEBINE

Chemicals and Plastics Section, Research and Development Branch, Military Planning Division

This paper is presented exactly as Dr. Stubblebine gave it at the Fifth Annual S.P.E. Conference in Philadelphia, Jan. 21.

The mission of Quartermaster research and development may be stated briefly as follows:

a. MAJOR FUNCTIONS

(1) Plans, organizes, directs and conducts research and development work for purposes of continuous improvement of existing items of Quartermaster Corps supply, and the development and design of new items (except Fuels and Lubricants material) to meet the current and future needs of the Army including considerations of military needs, simplification of supply, adaptability for training, and technical capacity to produce the item;

(2) Prepares and approves specifications for Quartermaster items and components, including consideration of required military characteristics, availability of raw materials, conservation of critical materials, industrial production facilities, and establishment of quality standards;

(3) Conducts studies and analyzes climatic and environmental conditions as they relate to Quartermaster Corps supply and service, and furnishes advice thereon to requesting agencies;

(4) In conjunction with the above, directs and/or conducts research and Quartermaster Corps acceptance tests on end items, components, and materials;

(5) Provides technical control of Quartermaster Corps control testing laboratories dealing with procurement items;

As you can see, our work is necessarily broad and varied. One further point I should like to make is that we are responsible for the improvment of existing items, the development of new and better items and for the technical sufficiency of the specifications used in purchase. We in research and development, however, do not purchase anything except laboratory supplies. Once an item has reached the specification stage and procurement initiated the job of research and development, if any remains at all, is purely an advisory one. For your general information all purchases are made through offices located in Chicago and New York. I will be glad to supply any of you with the specific addresses if you wish. I might add, too, that if you are aware of technical errors or misjudgments in any of our specifications, we will be glad to hear from you either in person or by letter. Our job is to give the soldier the exact item he needs—nothing more—nothing less—and welcome all the technical assistance we can get.

The uses of plastic films, if we include films in their broadest sense, are wide and varied. They range from rifle and gun covers to waterproof clothing and to packaging materials for rations. Each of these groups of applications requires special properties inherent in one or more types of plastic films and the only apparent common requirement is their lack of water permeability.

There is, of course, a detailed study of development which could be given for each type, but I have chosen to give you a few salient points along the way in each of the three fields and also to give you some idea of the trends our future may take.

Starting with packaging materials, we have evaluated, and used in some cases, cellophane, laminated cellophane, pliofilm, wax-lined, paper-metal foil combinations, plastic films on metal foils, vinyl films, polyethylene film, saran films, nylon films, and combinations of the plastic films in the form of laminates with various types of treated papers.

Since the Army must ship and store dry, hygroscopic foods, greasy foods and delicate flavorful foods for long periods of time, under conditions of both high and low temperatures, high and low humidities, poor storage and handling facilities, as well as many other circumstances tending to degrade the quality of the food, the problems are many. The requirements of flexible packaging materials for subsistence uses are as follows:

They must be resistant to water-vapor transfer, to grease transfer, to odor and flavor transfer, to air oxygen transfer, to insect penetration, to water penetration, to attack by the product, should remain flexible through the temperature range of -70°F to + 130°F and finally the material should possess strength sufficient to meet whatever specific requirements are placed upon it. In addition to the above, however, the materials must be easily handleable on packaging machines and should permit easy sealing. We do not, of course, expect to obtain everything we desire in one product, but the object of our research films, waterproof barriers and metal foils is to fulfill the foregoing list of military characteristics.

All of you know the shortcomings and advantages of the common types of films and I shall not dwell on these. We are currently working with a new type of saran film which promises many advantages over the saran film available two years ago, but it is too early to give any data on it. Similarly we are working with thin nylon films whose inherent properties have a great deal to offer but the production facilities are exceedingly small. We are also working on plastic coated metal foils such as acetate-coated alumium foil, for example.

For the future, we are not looking for one universally good film, our only hope is to find one material which will do each specific job adequately. If it requires, then, a great many different materials we will have to act accordingly.

Common to the use of films for packaging and to their utilization in other applications is the low temperature problem.

Our thinking has turned to increasing the functionality of our troops and equipment under conditions of extreme cold. There is a woeful lack of knowledge of the behavior of materials under these conditions. All that we do know at this time is that no available polymeric material maintains its functional properties at temperatures from -20°F to -65°F. We have received many claims of performance but practical experience has

(Continued on page 4)

QUARTERMASTER PROGRAM

(Continued from page 3)

not borne them out. It is a serious problem and it requires research in its most fundamental sense. The requirements are realistic and we must face them.

Our second large application of plastic films is in waterproof garments. All of you are familiar with the usual type of Army raincoat and wet weather clothing. Their main disadvantages are their weight and bulk and to a certain extent, too, their cost. Since plastic films offer a great deal of advantage from the standpoints of bulk and weight and in most cases, costs, too, we have been doing a great deal of work with film coating.

Two major problems, assuming the degree of comfort in a film garment is the same as any other impermeable garment, are those of permanence of properties (we must consider the toxicological aspects also of long, intimate contact with the skin) and the one of design to obtain the maximum effectiveness of films in each use.

Our work on improving the overall aging characteristics of plastic films, their resistance to plasticizer migration, sunlight and atmospheric degradation and freedom from blocking in storage are fairly well along. We still have one problem in permanence —and that is one of fungicidal resistance. Most plasticizers of the type imparting hand and drape also function as good hosts to fungi. It is simple to say then, that the answer is to use a fungicide in the compound. While that is the obvious answer, the question of the effect of the fungicide on the skin of the man with whom it is in contact is an important one. It is at this point that we must consider the toxicological problems associated with the entire system. Tests now in progress indicate we may have a partial solution at least.

On the question of design, there is much to be learned. Plastic films are neither textile fabrics nor are they even like coated fabrics. Plastic films have a set of characteristics which are uniquely their own. As a result of hundreds of years of experience, certain basic factors of clothing design have evolved—for textile fabrics. But these principles are not necessarily applicable to plastic films. We are interested in functional clothing—and films have many of the properties we want and need—but because of a lack of knowledge of how to get the best out of films on a design, as well as a fabrication, basis we can expect our share of troubles.

For the future, we are pushing ahead as fast as our limited knowledge will permit to apply plastic films in impermeable clothing for the very reasons enumerated above.

One of the very first military applications of plastic films was protective covers for small arms. This included the rifle and machine gun. All of these were classed as expendable items and soon it was found that the rifle and small arms covers made excellent waterproof bags for just about anything and everything and many a soldier had a warm spot for plastic film because of the utility of these small bags.

We have evaluated a wide range of polyvinylchloride, polyethylene, chlorinated polythene, and nylon. We still lean heavily toward the polyvinylchloride film, however.

Thus far we have found no way to use adequately large covers of plastic films. The problems are obvious. We have, therefore, gone to coated fabrics but the field is still there and it presents a problem for plastic films.

I have tried to point out to you some of our thinking and work on plastic films. I have not covered all of our work on the utilization of plastic films in military applications. Some of you may have seen our recent report, for example, on the improvement of the scratch-resistant properties of film used in eye-protective devices.

Our work on coated fabrics closely parallels that on plastic films—at least from a compounding standpoint—becauses the same basic problems of stability toward degradative influences prevail in both cases. For most purposes, our work on films and coated fabrics is competitive and we attempt to pick the most suitable material for each specific application.

A basic problem with coated fabrics is their low tear strength, when compared to uncoated fabric. We have instituted work in an effort to determine exactly what happens upon tearing a coated fabric—not the slow, nearly static test one gets with a tensile tester—but at high rates of load similar to that which takes place when a garment snags on an object when the wearer is walking or running. Out of it we hope to learn more about basic fabric constructions and perhaps coating properties so high tear strength coated fabrics can be made. The relationships of coating compound properties and basic textile fabric construction to the ultimate properties of the overall system have not been defined and we are in the process of studying all of these factors. The variation of properties as a function of the method by which the coating is applied is also undergoing study.

We have been sponsoring, for the past three years, work on the development of a water impermeable but water vapor permeable coated fabric. The advantages of such a material are obvious. Because of its lack of permeability, waterproof clothing can only be worn for limited periods of time. Depending upon the particular temperature impermeable waterproof clothing is uncomfortable even for short periods of wear. If the work is successful we will have a coated fabric which will permit the evaporation of perspiration, thus reducing the heat load on the body, while remaining impervious to liquid water. We hope at the conclusion of tests now underway to have more to discuss on this particular subject.

We have examined salvaged coated fabric raincoats—thousands of them—and found some interesting things. The report is available on request. The fabrics were coated with polyvinylchloride, polyvinyl butyral or GR-S. A careful study showed the faults associated with plasticizers loss, plasticizer migration and mildew of the resin-coated fabrics. It is interesting to note, too, that the polyvinylchloride and polyvinyl butyral coats that were good, were especially good, but the great majority were unsatisfactory. While part of the difficulty lay in the plasticizer availability situation which prevailed during the past war, the entire answer is not just that. On the whole, all of the raincoats studied which contained fatty acid derived plasticizers showed stiffening and mildew growth of various degrees. Through the National Research Council Advisory Board on Quartermaster Problems and its Committee on Plastics together with industry subcommittees from the resin, plasticizer and fungicide manufacturers, as well as a group of coaters, we have undertaken a large scale attack on the problem so that we can once more specify vinyl and butyral coatings with full confidence in their performance.

Our interest in coated fabrics is broad for it embraces such things as raincoats, ponchos, ground clothes, inflatable items, tentage (particularly for cold weather use), covers for many different items, upholstery, mattress ticking, footwear, components, fuel cells and a wide variety of special applications. I have given you only a brief resume of some of the specific ways in which we are trying to solve a few of our problems.

There is a final thought I would like to leave with you. We have a job to do to develop items to meet certain military requirements. Out of our study comes a specification—the one used for procurement purposes. When you see our specifications and you can find technical insufficiencies or omissions, please call them to our attention. We want our soldiers to be the best clothed, best fed and best equipped in the world and if you can help us to do it—we want you to do just that. Keep this in mind—it's your Army—and it's your money, too. You can help us and perhaps we can help you too.

START NOW!!! ENTER THE 1949 SPE PRIZE PAPER CONTEST

PROPERTIES OF BERYLLIUM PLASTIC MOLDS—DETROIT

By WALTER KOZY

The February meeting of the Detroit Section was held in the Rackham Building on February 18th. In the absence of the current program chairman, Don Hoffman introduced the new officers and directors of the section who are as follows:

Harry McGowan, President; John Mickey, Vice-President; Carl Holmes, Sec.-Treas.; Bob Dailey, National Director; Walter Kosy, Director; Don Hoffman, Director; Wm. Biggers, Director; Josh Miller, Director; Ernest Storfer, Director; Ebert Knauer, Director.

Mr. Bob Dailey reported on the National Technical Conference held in Philadelphia in January and reported that the meeting was a success with over 600 enthusiastic registrants present.

The speaker of the evening, Mr. John Koons, was then introduced. Mr. Koons is general manager of the Process Mold Company, specialists in the making of beryllium pressure castings for the plastics and die-casting industry, and he had with him over 30 different beryllium cavities which he used to illustrate his talk. These cavities were produced by pouring the beryllium alloy around a master hardened steel hob and applying pressure while the metal was in a molten state. By this means cavities can be produced which are impossible to hob cold in steel; with clarity of detail, uniform density, irregular parting lines, in any shape or design.

The cavities as cast have a tensile strength of 125,000 p.s.i. and a hardness of Rockwell C 34-35. They have a yield strength of 110,000 p.s.i. and a tension impact of 4 ft. lbs. For ease of machining the cavities are annealed, which is done by soaking for three hours in an air circulating muffle furnace at 1450 to 1475 degrees F. and immediately quenching in water.

Upon receipt of the shipment, the customer is required only to machine the outside diameter of the cavity to square up the cavity blocks, drill for the core pins, anneal etc., and then harden.

To harden, the cavities are placed in an electric box type furnace when the furnace is cold. The temperature is then brought up to 575-600 degrees F. and held for three hours. The parts are then removed and allowed to cool in still air. Under no condition should a quench be given to the cavities. Salt baths are definitely not recommended.

The alloy after heat treatment has a uniform hardness of Rockwell C43-C46 throughout and is not just case hardened. This gives it an advantage over cold hobbed cavities wherein there is a soft core condition.

The physical properties resulting after the hardening operation are as follows:

Tensile—175,000 p.s.i. to 180,000 p.s.i.

Elongation in 2 inches—1% to 2%

Yield—130,000 p.s.i. to 145,000 p.s.i.

Thermal Conductivity—25% to 30% I.A.C.S.

Hardness—Rockwell C43-C46

Density—0.295 lbs./cu. in.

Tension Impact—8 to 9 ft. lbs.

Due to the precipitation hardening characteristics of the alloy there is neither expansion nor contraction in the size of the cavities, as the material is degrowthed during casting. After heat treatment the cavities are polished and, if desired, a flash chrome plate of .0003" to .0005" is applied. This is recommended for thermosetting applications and rubber molding.

There has been a decided tendency among the injection type plastic molders to use beryllium cavities in the "as-cast" condition. Production runs of from one-half million to thirty-six million pieces have been obtained by molders from cavities in the "as-cast" condition.

Mr. Koons showed samples of cavities which he claimed were impossible or too expensive to make except by the beryllium high-pressure casting process. One such was a fountain pen barrel which couldn't be hobbed in steel because of its length and the close dimensional tolerance required. It was easily made using the beryllium casting technique. Another was an oven control knob whose intricate shape and fine raised lettering proved too much for cold hobbing, but no problems at all for the hot casting method.

The talk was very well received by all present and stimulated considerable discussion. Mr. Koons is a good speaker and knows his subject. The program committee should be congratulated on starting the year off with such an excellent talk.

PETRETTI AT QUEBEC

Mr. M. J. Petretti, recently elected National President of the S.P.E. addressed the Quebec Section on February 23rd in the Canadian Industries Limited Theatre in Montreal. Speaking on Preform Design and Stripper Plate Design, Mr. Petretti, General Manager, Plastics Division, Noma Electric Co. Ltd., Holyoke, Mass., proved highly interesting to approximately forty representatives of various molding concerns in the area.

Mr. W. Lynch, President of the Quebec Section, announced that Mr. James V. Veverit, Secretary of the Buffalo Section and President of James V. Veverit and Associates, Industrial Designers, will address the March Meeting of this Section.

NEW ROCKFORD 36" OPENSIDE HY-DRAULIC SHAPER BULLETIN

A new bulletin has just been released by the Rockford Machine Tool Co. of Rockford, Illinois, describing their current model 36" Openside Hy-Draulic Shaper. This machine has hydraulically powered table drive and tool feed. Table speeds range from 0 to 110 feet per minute and may be varied infinitely. The table has a working area of 21½ x 36 inches and permits normal work height up to 24" above table (32" with extra high column). Side head is available as additional equipment. Bulletin No. 300 may be had by writing to Rockford Machine Tool Company, Rockford, Illinois.

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Klippings from Kozy

By WALTER KOZY

Our most cordial welcome to TOM J. MARTIN who has been appointed branch sales manager at Detroit for Monsanto Chemical Company's Plastics Division replacing Carl Whitlock, resigned. Mr. Martin comes to Detroit from the St. Louis office of Monsanto where he was branch sales manager.

A native of Springfield, he graduated from college in 1937 with a B. S. degree in chemistry. He joined the Fiberloid Corporation, forerunner of Monsanto's Plastics Division, as a research chemist in that year. In 1943 he was appointed a technical field representative for part of New England, and in 1947, was promoted to branch sales manager at St. Louis.

Wedding bells rang recently for NORMAN TREPANIER chemical engineer at Reichhold Chemicals, Inc. In 1947, Norm was one of the two individuals who tied for first place in the Detroit Section SPE Prize Paper Contest with his paper on a continuous viscosimeter for control of resin cooking. His bride is the former Mary Morgan, daughter of Detroit's Superintendent of Police.

Two newcomers to the Detroit area are JAMES BAIN, who is now production manager of the Plastics Division of Fabricon and DAVID YEOMANS now chief chemist of Fabricon. Both were formerly with the Bakelite Corporation in the Bloomfield Development Laboratory. Go get 'em, Mr. Zumstein.

MR. MAURICE FLEISHMAN has left the Detroit area to become senior development engineer for the Goodyear Aircraft Corporation in Akron, Ohio. He was formerly process and development engineer for the U. S. Rubber Company in Detroit and previous to this he was with Elmer E. Mills in Chicago. Mr. Fleishman will work on military applications for plastics at Goodyear.

MANCO APPOINTMENTS

Mr. G. Palmer Humphrey, 366 Madison Avenue, New York 17, N. Y. (phone Vanderbilt 6-3417) has been appointed as District Manager for Manco Products Company of Melvindale, Michigan, fabricators of TRU CAST Beryllium Copper cavities.

Mr. L. M. Loveless, formerly with Stromberg Carlson Company of Rochester, New York, has been named District Manager for Manco Products Company of Melvindale, Mich. fabricators of TRU CAST Beryllium Copper cavities. Mr. Loveless whose address is now 544 Sibley Tower Bldg., Rochester, (phone Baker 7595) will serve many Manco customers in northwestern New York and Pennsylvania.

PENN NOTES

By PAUL ROCHE

E. Y. "Jack" Wolford of the Koppers Co., has just been accorded a significant advancement in his position. Formerly in a research capacity with the company in Pittsburgh, he has recently been placed in charge of operations at the Koppers Styrene plant at Kabuta, Pennsylvania.

Stanley Berg, Watson—Stillman representative of Pittsburgh has been appointed chairman of Sales of Advertising space in The SPE News for the Northwestern Pennsylvania Section by Mr. Robt. S. Wilson, Jr., of Sylvania Products, Inc., Warren, Penna. New section president Stan moves about the section with more energy and regularity than any other individual and good progress in elevating the level of advertising revenue is expected as a result.

It is learned that Presque Isle Plastics of Erie Pennsylvania has added a new 48 ounce Watson Stillman injection molding machine to their plant equipment. This company has made a specialty of large injection molding work from its origin in 1945. William J. Phillips is President of Presque Isle Plastics, which company includes a long list of enthusiastic and active members of the SPE, N. W. Penna. Section.

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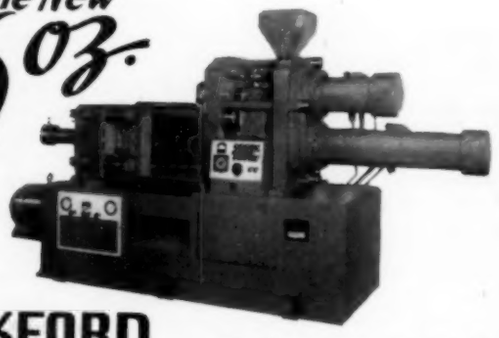

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4811

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Manufacturers of Hy-Draulic Shapers • Planers
Slotters • Shaper-Planers for Metal Working

MOLDS AND MOLDING ARE NEW YORK TOPIICS

By A. M. MERRILL

Two technical talks featured the March 8 meeting of the New York Section at the Hotel Sheraton. Approximately 48 members and guests attended and heard Bruno E. Wessinger, president of Wess Plastic Molds, Inc., speak on "Problems of a Mold Maker," and Frank J. Donohue, technical service manager for thermosetting molding materials, Monsanto Chemical Co., discuss "Trouble Shooting of Molding Problems."

Mr. Wessinger stated that a mold maker should take his jobs from the molder, rather than from the customer. The mold design should be worked out by both the molder and mold maker, and mold prints made and approved by all parties concerned before any work begins. The following points were suggested to help keep mold costs down: (1) keep cut-offs on one level to aid machining and permit grinding of cavities and forces after hardening, a procedure which results in better cut-offs and less possibility of flash; (2) see that the steel walls of the mold are not too thin, thus avoiding warpage and breakage during heat treating; (3) avoid overelaborate molds designed to save a little work on the molded piece, since such molds are expensive to make and maintain; (4) avoid doing too much with one mold by putting in different inserts, cavities, etc., which increase cost; and (5) the molder should decide in advance how the sprue bushing should be fitted, how the runner should be shaped, etc., since such factors can usually be incorporated in the mold at no extra cost, but are expensive if done after the mold is finished.

Estimating the cost of a mold requires that the mold maker be given all pertinent data on the mold. Since many estimates include the cost of breakage of two or more hobs, the molder should request an estimate based on the use of one hob, and agree to pay separately for any additional hobs needed for the job. Promised delivery dates of molds are a constant source of irritation, the speaker declared. These dates cannot always be kept, but the molder should bear in mind that the mold maker is doing his best to finish the job quickly, if only for economic reasons, and that little or nothing will be gained by trying to hurry matters. As regards mold responsibility, Mr. Wessinger stated that any mold used in production for 50 hours with satisfactory results should no longer be the responsibility of the maker. Any defects in the mold arising from faulty workmanship will show up in that period of time, and should be adjusted by the mold maker.

Mr. Donohue's talk was identical with the paper he presented before the SPE National Conference on January 21. The speaker listed troubles arising in the molding of phenolics, their possible causes, and their remedies, and concluded by giving the following suggestions for solving molding problems: (1) observe the molding operation personally and avoid second-hand reports; (2) check mold and molding conditions and try molding another material in the mold to determine if one mold is operating properly; (3) proceed with further tests in an orderly manner, and record all results; (4) do not change more than one variable at a time to avoid confusion as to meaning of results; and (5) allow sufficient time for each change to take effect and for equilibrium to be reestablished before proceeding to the next change.

Table favors consisting of combination plastic rulers and pencil sharpeners were distributed through the courtesy of Mike Miller, Miller Plastics Co., and the drawings for door prizes included a handsome poker chip set donated by Section president Sam Silberkraus, Regal Molding Corp.

The Section's next dinner meeting will take place on April 12 at the Hotel Shelbourne (the new name for the Hotel Sheraton). Russell B. Akin, technical assistant, E. I. du Pont de Nemours & Co., Inc., will speak on "Nylon as a Plastic Molding Material," and Herbert Proske, technical representative, Wheelco Instruments Co., will give an informal talk on his recent trip to Europe.

NEWARK "GUEST" PROGRAM FEATURES EXHIBIT OVER 1000 HEAR McCANN AND BLOUNT

By PETER W. SIMMONS

The Guest Engineers' Meeting of the Newark Section of the Society of Plastic Engineers held on February 9, 1949, was acclaimed as a great success, by all who attended. Displays were assembled by over thirty-five exhibitors representing an excellent cross cut of injection and compression molders, tool and die makers, equipment manufacturers, fabricators and manufacturers of plastic raw materials. Also, in the afternoon commencing at 3:30 there were several showings of the S.P.I. film entitled "Testing the Mechanical Properties of Plastics at the Massachusetts Institute of Technology". The attendance for the afternoon session was estimated at approximately 1000 people. The dinner in the evening was attended by 275 people. These attendance figures were a good deal higher than was originally anticipated. The dinner meeting was attended by representatives of fourteen professional societies of this district, and all major raw materials manufacturers were represented by one or more of their technical service men.

The first speaker of the evening was Mr. Hiram McCann, editor of "Modern Plastics" magazine. His topic was "Where Do We Go From Here?" His entire talk was keynoted to obtain the more conscious sales outlook in engineering of plastic products. By way of background, he pointed out that the plastics market has no peculiar market of its own but shares in all markets as components of end products. Further, he pointed out the tremendous growth of the plastic industries over the last twenty years. Relative to this growth, he brought forth many examples which illustrated this point. One of the most impressive was the use of plastics in the automobile trade. He stated that in 1941 the average automobile used approximately 7½% of plastic parts. The average automobile in 1949 uses almost 12% of plastic parts. This increase when multiplied by the five million units expected in 1949 is very sizeable for a seven-year period. This, as well as the tremendous increases in other fields such as household appliances, radio and refrigeration, has been made possible through sales conscious engineering. With this as a background, Mr. McCann outlined some of the newer fields which are opening on the plastics vista, and what can be expected of these if through proper engineering they are exploited to the fullest. Among these fields he discussed packaging, architecture, construction and home decoration, flooring materials and television. In regard to the latter, he pointed out that television manufacturers who are contemplating the use of large moldings for cabinets had to actually seek out molders for this job, and only one out of four molders was at all interested in a project such as this. Here is a definite example of the lack of sales conscious engineers. Mr. McCann climaxed his talk by placing the answer of where do we go from here, directly on the shoulders of the engineers.

The second speaker of the evening was Mr. Clinton W. Blount, Vice President and General Manager of the Bakelite Corporation. His topic was "An Engineering Evaluation of Plastics". Mr. Blount stressed the importance of using the right plastic in the right application, and demonstrated visually the wide range of characteristics which plastic materials have to offer, from flexible vinyl and polythylene films to silicones. In engineering, he stated there were two things which should be watched

NEWARK

(Continued from page 7)

closely. One is the possible overstressing of non-essential properties of a plastic for any particular application. The second is the fact that in engineering one should not make assumptions but should have at hand all pertinent information necessary to complete the job. He defined briefly all of the present commonly used plastics by stating those properties by which they are most commonly known. Mr. Blount at this point brought to light the economy factor as it pertains to plastic materials, pointing out the percentage of increase in price of various plastic raw materials as opposed to the increase in price in other basic commodities. The price changes since December 31, 1945, in plastic materials ranged from urea molding material with an increase of 12.7% to vinyl resins with an increase of 3⅓%. Other basic commodities used as examples ranged from lead with an increase of 258% to cotton with an increase of 31%. Mr. Blount concluded by restressing the point that you should choose the right plastic to fit the specific application. He warned not to expect tables of data to tell the complete story, stating that time proven use with well known good points and acknowledged short-comings may mean more to the molders than all the technical data available.

NORTHERN INDIANA

By WAYNE PRIBBLE

Mr. James H. Hawkins, General Agent, Monarch Life Insurance Co., Ft. Wayne, Indiana, addressed the Northern Indiana Section of the Society of Plastics Engineers, Inc., (SPE) on the subject "The Role of Life Insurance in Business." "Money is always a problem in business" said Mr. Hawkins, "and Life Insurance can make money available when it is most needed." Mr. Hawkins pointed out four of the main uses for insurance which were: Sole proprietors, Partnerships, Small closed corporations and Key man. He continued by saying "The death of anyone in these four situations usually results in a forced liquidation of the business at a resulting loss of ½ to ⅔ of the business value." The conclusions from Mr. Hawkins' talk were that Life Insurance coupled with "buy and sell agreements" and "wills" provided the necessary money when it was needed so that no unnecessary hardships were imposed on the family of the deceased or the remaining owners of the business.

This meeting, held at the Van Orman Hotel in Ft. Wayne on Friday Feb. 18, was the first since the election of new directors and officers of the section.

In a recent election new directors of the society were elected. The directors are:

Mr. Cecil Armstrong, Armstrong Plastics, Burket, Indiana; Mr. Alvis Barrier, Barrier-Pribble & Co., Inc., Ft. Wayne; Mr. Frank Butters, General Electric Co., Ft. Wayne; Mr. Karl Koehler, Wayne Plastic Products, Ft. Wayne; Mr. Ferris Neuman, U. S. Rubber Co., Ft. Wayne; Mr. Wayne Pribble, Barrier-Pribble & Co., Inc., Ft. Wayne; Mr. Walter Schaefer, Wayne Plastic Products, Ft. Wayne; Mr. Harry Temple, Square D. Co., Peru, Indiana; Mr. George Williams, U. S. Rubber Co., Ft. Wayne.

From this group, officers elected were: Wayne Pribble, Pres. Cecil Armstrong, Vice President and Walter Schaefer, Sect'y-Treas. Future meetings of the Northern Indiana Section SPE will be held on the third Friday of each month at 8:00 P.M., at the Van Orman Hotel in Ft. Wayne. All engineers, Purchasing agents or others having an interest in Plastics are invited to attend.

PLIOLITE AT TOLEDO

BY GEORGE TAYLOR

Mr. Robert J. McCutcheon, Goodyear Tire and Rubber Company, discussed Tuflite compounds at the March 9 dinner meeting of the Society of Plastics Engineers held at the Toledo Yacht Club.

His talk covered the development of blends of high styrene Pliolite 36 resin with various rubberlike polymers to produce a family of compounds known as Tuflite compounds. These compounds have brought more closely together the fields of rubber and plastics. Some of the outstanding properties of these various blends include: (1) excellent impact strength combined with rigidity; (2) the ability to absorb loading and produce stocks in a wide range of specific gravities; (3) ease of molding; (4) machinability on wood or metal working equipment; and (5) post-formability.

Mr. McCutcheon discussed these properties as well as the possibilities of "tailor-making" a Tuflite compound to meet a desired requirement.

The interesting new plastics, Kel-F and Kel-Flo will be discussed by Dr. Louis C. Rubin, manager of Chemical Manufacturing, M. W. Kellogg Company, at the April 13 meeting of the Society of Plastics Engineers. Dr. Rubin's discussion will follow a dinner held at the Toledo Yacht Club at 6:30 p.m.

This new material was developed during the war for the Manhattan District and is now being produced by the Kellogg Company.

High polymeric trifluorochloroethylene (Kel-F) is a chemically inert thermoplastic which can be molded by conventional methods at from 250 to 300°C. It is insoluble in organic solvents, is swollen at elevated temperatures by halogenated solvents. It is inert to aqueous acids, bases, and oxidizing agents. Its electrical losses are low, and specific resistance is high.

Trifluorochloroethylene polymers in the 1000 to 2000 range of molecular weight (designated Kel-Flo) are oils or waxes. They exhibit the same chemical inertness of Kel-F, and have some lubricating properties. They can be used as plasticizers for Kel-F.

NO PIE ENGINEERED

By C. TODD CLARK

The St. Louis Section met on Tuesday Feb. 22nd at the Melbourne Hotel.

A cocktail and social hour preceded our dinner. The libations were sponsored by four members. An unusually large attendance for our small membership. Must have been the excellent subject of our guest speaker's talk.

Subject: "Vinyl Polymers in Surface Coatings" by Vernon L. Larson, Bakelite Corporation Unit of Union Carbide Company. Mr. Larson has recently come to St. Louis to represent his company in their Surface Coating and adhesive Division.

Mr. Larson gave an excellent talk on his subject and discussed many examples of applications shown in samples of materials passed amongst the audience.

The meeting was a success and the dinner was served without the customary cherry pie, on Washington's Birthday, only a SPE can engineer such a drastic change in national custom.

Harry Du Bois, our past prexy was our guest speaker at a dinner meeting March 22nd Melbourne Hotel.

PHILLY HEARS BURNS

By W. J. MILLER

The February meeting of the Philadelphia Section Society of Plastics Engineers was held at the Dairy Dell of the Franklin Institute on Tuesday evening February 15. Approximately 40 members assembled to enjoy a fine dinner and to hear a talk by Mr. Robert Burns, head of Plastics Engineering of the Bell Telephone Laboratories. Mr. Burns is a pioneer in the use of plastic materials in telephone equipment and gave a rather interesting talk on plastics from the angle of a large consumer of plastic materials. He pointed out that price too often is emphasized though the physical requirements of the material are far more important than price considerations. The principal properties in which Bell Telephone Laboratories are interested so far as plastic materials are concerned are dimensional stability, impact strength and heat resistance.

Section Notes . . .

QUEBEC met March 23rd in Montreal to hear James Veverit speak on "Design in Plastics". Veverit, who is Secretary of the Buffalo Section of SPE and is president of James V. Veverit & Associates, industrial designers, emphasized that products should be designed from the outside in. It was only because such methods were employed that the automobile has ceased to look like a mechanized buggy, and the electric refrigerator like a cross between a mechanical man and the old fashioned ice-box.

UPPER MIDWEST's well planned activity is further stimulated and coordinated by the work of Erwin W. Ulrich, who puts out a monthly news bulletin with schedules of future meetings, and news of local members.

The March 14th meeting heard T. N. Wilcox, Manager of the Methods and Equipment Lab., Plastics Div. of G. E., talk on "Recent Trends in Plastic Molding Equipment—Automatic Molding of Thermosetting Plastics, Low Pressure Molding and Extrusion of Nylon".

Future meetings planned are for April 11, when R. W. Van Sickle of Dow will speak on "New Thermoplastics at Dow" and for May 9 a plant visit at Minneapolis Honeywell.

The Prize Paper contest sponsorship is all ready taking hold, and it is expected that some fine material should come through this section.

An interesting activity, unique in SPE sections, is the publication in the local bulletin each month of a sketch of each local company engaged in the plastics business in the Upper Midwest area.

CHICAGO met jointly with SPI on March 9th to hear Irving E. Muskat, president of the Marco Chemicals, Inc. An added feature was the showing of the Northwestern University football highlight film for the 1948 season, with Ed Tunnicliff as commentator.

PHILADELPHIA was host to B. F. Hantz, chief engineer of the American Insulation Corp., who gave an illustrated talk on molded parts, and then led a discussion period on molding problems. The meeting was held March 15th at the Franklin Institute.

CENTRAL OHIO heard J. V. Ferriot at their March 10th meeting at the Hotel Berwick in Cambridge, Ohio. Ferriot Bros., Inc., was one of the first producers of molds by the pressure casting methods using beryllium copper, and they are at present one of the largest suppliers of such mold parts for the plastics molding trade.

ENESPE, the Eastern New England Section met March 3rd at the Hotel Vendome. Robert F. McTague of the Stanley Chemical Company spoke on the subject "Application of Vinyl Polymers to Metallic and Rigid Surfaces. George Makepeace of ENESPE has joined the Cowan Boyden Corp., of Chartley, Mass., and is being transferred to the Rhode Island section.

"Trouble Shooting of Molding Problems" was the subject of the February 15th meeting of the ROCHESTER section. Frank J. Donohue of Monsanto was the featured speaker. Thumbnail sketches were given by Ernest W. Goral, Richard L. Hayes and Marco Hecht.

CLEVELAND met in February to hear Dr. Maurice H. Bigelow of Plaskon, nationally known connoisseur of epigram, ancedote, and le bon mot, and authority on molding resins, talk on "The New Resins."

1949 officers of the Cleveland section are: Pres. R. L. Huber; Vice-president, C. F. Waterfield; Treasurer, W. T. Van Orman; and Secretary, M. W. Osborne, Jr.

BALTIMORE - WASHINGTON'S March 10th meeting heard George H. Clark, vice-president and chief engineer of the Formica Corp., speak on "The Plastics Materials Manufacturing Association Program at Massachusetts Institute of Technology".

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Ask for Bulletin K-200 which is a brief picture story of how Imperial Molded operates. Also Bulletin K-100 showing stock pulls, knobs and handles.

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DEVELOPMENT Experimental end caps were made from Durez phenolic casting resin, using low-cost plaster of Paris molds. Easily machined resin facilitated changes in design, eliminating bugs in advance of production.

JIGS On assembly line, Durez casting resin was used for quick and inexpensive jig forming. Jigs were cast and in operation "in less time than would have been needed for a drawing alone." Added casting resin advantages are light weight and long wear.

PRODUCTION Moisture proof, non-corrosive, self-insulating characteristics of Durez casting resin were obtained with production-run economy in a standard Durez phenolic molding compound. Caps are molded with integral flanges, also assembly hole openings that make drilling unnecessary.

For more information, write Durez Plastics & Chemicals, Inc., 333 Walck Road, North Tonawanda, N. Y.

Casting Resins

PHENOLIC RESINS THAT FIT THE JOB

SOUTH TEXAS held a 'deluxe meeting' March 16th to consider "New Architectural Uses for Plexiglas". W. T. Reedy of Rohm & Haas, assisted by Dan E. Bloxsom of Southwestern Plastics, were the speakers. There was a large exhibit and a new set of slide illustrations. Discussed were interior and exterior decorations, outdoor signs, and the latest decorative details on Houston's Shamrock Hotel.

WESTERN NEW ENGLAND heard Harold G. Roman of the F. J. Stokes Machine Co., talk on "Automatic Compression Molding" at their March 2nd meeting at the Hotel Sheraton in Springfield, Mass. A moving picture "Robots at Work" was also shown, and the usual door prize given.

BUFFALO met February 18th to hear W. F. Kemper, chief metallurgist of the Carpenter Steel Company talk on "Tool Steels Used in the Plastics Industry". An added feature was the showing of the film "The Scientific Approach to Better Plastics".

Buffalo was admitted to the TECHNICAL SOCIETY COUNCIL of the NIAGARA FRONTIER. Our meetings will be listed in the monthly *Technical Society News* of which each member of S.P.E. will receive a copy. This automatically makes available to all members of S.P.E. participation in meetings of all other technical societies in this area.

A most cordial welcome is extended to the following new members: Arthur Schutt, of The Carborundum Co., Niagara Falls, New York; John Henderson, of Atlas Plastics, Buffalo, New York.

The monthly directors' meeting was held on Tuesday, March 9th, at the home of James V. Veverit, 70 McKinley Avenue, Kenmore, New York. Discussion included plans for future meetings and an aggresive campaign for new members. You'll hear more about *this* later! Plan now to attend the April meeting—Russ Houghton of the Vilex Corporation, Olean, New York, will be guest speaker.

Let's have a good turn-out for the plant tour of the Western Electric Company!

DETROIT will hear Dr. M. H. Bigelow, technical director of Plaskon speak on "New Resins for Plastics", and John Mickey will give a "Review of National Society Special Activities 1948" at the April meeting, April first at Cotter's Tavern in Berkley, Michigan. There will be door prizes and motion pictures.

ROCHESTER met March 15th to be host to M. H. Nickols of Manco Products. He spoke on Tru-Cast beryllium copper molds. As an extra feature Earl Johnson and Frank Morris of the Rockford Machine Tool Company showed a film on the Rockford Hy-Jector. Thumbnail sketches were given by Herschel L. Henry, Vernon M. Howe, and Henry J. Kauth.

NORTHERN INDIANA met March 18 to hold an open form on plastics with Ferris Neuman as moderator. W. J. Conley, Alvis Barrer, Cecil Armstrong, and Wayne Pribble formed a panel of experts to answer any and all questions.

National Debt

(Continued from page 1)

debt that the suggestion was made last January that voluntary contributions be called for, since the officers have been reluctant to levy any assessment. About a hundred dollars was collected at the National Meeting luncheon in Philadelphia in January. Since then the Baltimore-Washington section has contributed sixty dollars. The initiative for this collection must be local in origin, as no plea can come from the national. While the national SPE is on firm ground and gaining in strength, it still must be apparent to anyone that of the money collected from dues this year, a thousand must go to retire old debts, and so is not available for service to the local sections or membership. When this debt is retired, the national will be much better able to render the services the members want, and that the SPE earnestly desires to give.

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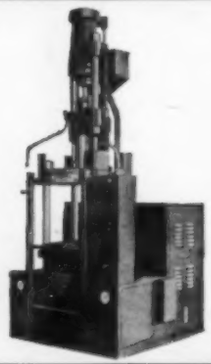
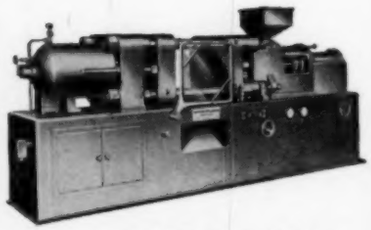
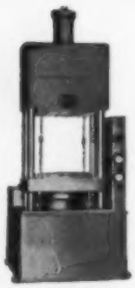


Vertical Injection Molding Machines 1, 2, and 4 Ounces

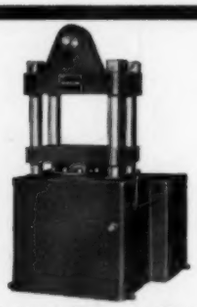


Horizontal Injection Molding Machines 8 to 80 Ounces

Preform Tableting Machines 10 and 100 Tons



Transfer Molding Machines 30 to 1200 Tons



General Purpose Presses 20 to 200 Tons

Compression Molding Presses 50 to 1200 Tons

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